8.7 Worker Health and Safety

The Henrietta Peaker Project (HPP) consists of a 91.4-megawatt (MW) (net), natural-gas-fired, simple-cycle power plant located approximately 10 miles southwest of Lemoore, California, on a seven-acre portion of a 20-acre parcel owned by GWF Energy LLC. The HPP will interconnect to the existing adjacent Pacific Gas and Electric Company (PG&E) Henrietta Substation through a new 550-foot 70-kilovolt (kV) transmission line supported on two new transmission poles. Other linear facilities include an approximately 16.5-foot water interconnection pipeline (from the site property boundary) and a 2.2-mile Southern California Gas Company natural gas interconnection pipeline. Additionally, approximately five acres will be used for temporary construction laydown and parking.

This section describes the health and safety programs and procedures that will be established and implemented during construction and operation of the HPP, including the switching station, the transmission line, the natural gas pipeline, and the power generation facility. Health and safety information on the electric transmission system is provided in Section 6.0 (Electric Transmission). These programs will be established in accordance with applicable laws, ordinances, regulations, and standards (LORS) to ensure the safety and well-being of all workers participating in the HPP. The following sections describe the affected environment, applicable LORS, anticipated occupational hazards associated with the construction and operation of the facility, health and safety programs that will be established during construction and operation, and safety permit requirements and local agency contacts. The HPP will be operated and maintained by the personnel from the GWF Power System's Hanford Cogeneration Facility. GWF maintains a comprehensive worker health and safety program at the existing facility that will be modified as needed to incorporate the HPP operation.

8.7.1 Affected Environment

The HPP includes the construction and operation of a natural-gas-fired peaker plant with ancillary support facilities, including a 70-kV power transmission line, a natural gas pipeline, and a switching station. Figure 2-3 depicts the detailed facility layout. Figure 8.12-1 shows the locations of the hazardous materials used at the HPP. Figure 8.7-1 shows the locations of the fire protection systems and emergency response equipment at the HPP.

8.7.2 Laws, Ordinances, Regulations, and Standards

Conformance with LORS is discussed in Section 8.7.3.1 for all construction-related requirements and in Section 8.7.3.2 for all requirements applicable to operation and maintenance. Conformance with training requirements is covered in Sections 8.7.4.1 and 8.7.4.2 for construction and operations and maintenance, respectively. The LORS applicable to worker health and safety are summarized in Table 8.7-1. California is one of 23 states that operates its own Occupational Safety and Health Administration (Cal-OSHA). As such, Cal-OSHA regulations will take precedence over the federal OSHA regulations at this site. In addition to requiring all contractors and employees to comply with established LORS, periodic health and safety compliance self-audits will be performed during the course of the construction and operation and maintenance of the HPP to ensure that employees are conducting their work in accordance with the regulations.

8.7.3 Occupational Safety and Health

Construction, operation, and maintenance activities associated with the HPP may expose workers to a wide variety of physical and chemical hazards. Worker exposure to these hazards will be minimized through adherence to appropriate engineering design criteria, implementation of appropriate administrative procedures, use of personal protective equipment (PPE), and compliance with applicable health and safety LORS. Potential hazards that workers may be exposed to while working on the HPP are presented in Table 8.7-2. Formal health and safety procedures and programs will be established and implemented by GWF and its contractors on the HPP to control the various hazards and to provide for a safe workplace.

The programs, regulations, and preventive measures intended to protect worker health and safety are described in the construction and operation and maintenance portions of this section. The comprehensive health, safety, and fire prevention program enforces safe and healthful practices and implements an accident/injury prevention program intended to ensure safe and healthful operations at the facility on startup and operation.

During the construction, operation, and maintenance of the HPP, employers will develop and implement the necessary health and safety programs to mitigate the identified

workplace hazards and to protect the health and safety of the workers. Brief descriptions and outlines detailing anticipated program content are provided in the following sections.

8.7.3.1 Construction Health and Safety Programs

During construction, the general contractor will be responsible for enforcing contract provisions to ensure compliance with the construction safety program and federal, state, and local health standards that pertain to worker health and safety. Consistent with OSHA's policy on multi-employer work sites, each employer will be responsible for the health and safety of its own employees. Periodic health and safety audits will be conducted to verify contractor and subcontractor compliance with contractual health and safety obligations.

Construction Injury and Illness Prevention Program. The overall written Construction Safety Program will include provisions to ensure compliance with requirements of Cal-OSHA's Injury and Illness Prevention Program (IIPP) (Title 8, California Code of Regulations [CCR], Section 1509). The written Construction Safety Program will include:

- A Code of Safe Practices that relates to construction operations
- Identification of the person or persons responsible for implementing the Construction Safety Program
- Posting of the Code of Safe Practices at a conspicuous location at the job site office and providing it to each supervisor, who shall have it readily available
- A description of the system for identifying workplace hazards, including workplace inspections, job hazard analysis, and written hazard assessments
- Periodic meetings with employee representatives, supervisors, and management to discuss safety issues, including compliance assessments, accidents, injuries, and new or modified health and safety procedures
- A system for ensuring employee and subcontractor compliance
- Routine "toolbox" or "tailgate" safety meetings conducted with employees and supervisors
- A system for promoting employee feedback and suggestions for improving workplace safety
- Procedures for promptly correcting unsafe conditions

- Identification of safety training and experience requirements for specific work activities

Construction Personal Protective Equipment Program. Contractor employees will be required to use the required PPE during construction. Required PPE will conform with general industry standards. The use of PPE for site activities includes, but is not limited to, the items described in Table 8.7-3. All PPE worn on site will comply with Cal-OSHA and American National Standards Institute (ANSI) requirements. Respiratory protection will be included in the PPE Program. Employees will not be required to wear respiratory protection until they have received a medical evaluation, respirator fit-testing, and training on the proper use, limitations, and care of respirators.

Construction Exposure Monitoring Program. Appropriate exposure monitoring will be conducted to evaluate potential employee exposures to hazardous/toxic materials. Air monitoring may be conducted, if necessary, to evaluate the potential for employee exposures to the contaminants of concern. Airborne exposures will be controlled through the implementation of engineering controls, administrative controls, or PPE. Air monitoring will also be required in support of other safety programs, including confined space entry, hot work permits, and emergency response. Sound-level monitoring will also be performed as necessary during the construction phase to evaluate potential employee noise exposures.

Construction On site Fire Suppression and Prevention. The HPP will rely on both on site fire protection systems and local fire protection services. A Fire Protection and Prevention Program will be followed throughout all phases of construction and will provide the specified firefighting equipment. The Fire Protection and Prevention Program will address each of the following requirements:

- General requirements
- Responsibilities
- Housekeeping
- Employee alarm/communication system
- Portable fire extinguishers

- Fixed firefighting equipment
- Fire control
- Flammable and combustible liquid storage
- Use and handling of flammable and combustible liquids
- Dispensing and disposal of flammable and combustible liquids
- Servicing and refueling areas
- Training

During construction, portions of the facility fire suppression system will be placed in service as soon as practicable to provide early fire protection. Construction fire prevention procedures will be developed in accordance with applicable regulations (8 CCR, Sections 1620 et seq.) and will be followed as necessary to prevent construction-related fires. Special emphasis will be given to operations involving open flames, such as welding, metal cutting, and brazing. Hot work permits will be required for specific activities that present the potential for fire, and the personnel involved in such operations will receive appropriate training by the contractor. In addition, a fire watch that utilizes the appropriate class of extinguishers or other equipment will be maintained during hot work operations. Site personnel will not be expected to fight fires past the incipient stage.

Materials brought on site by contractors must conform to contract requirements, insofar as flame resistance or fireproof characteristics are concerned. The contractor must provide a copy of the material safety data sheet for each material delivered to the project site and retain a copy in his files. Specific materials in this category include fuels, paints, solvents, plastic materials, lumber, paper, boxes, and crating materials. Specific attention will be given to the storage of compressed gases, fuels, solvents, glues, oils and greases, and paints.

The onsite fire suppression system during construction will consist of portable and fixed firefighting equipment. Portable firefighting equipment will consist of fire extinguishers and small hose lines in conformance with Cal-OSHA and the National Fire Protection Association (NFPA). Contractor safety representatives will conduct fire prevention inspections on a weekly basis during construction of the plant.

Fire extinguishers will be inspected monthly and replaced immediately if defective or in need of recharge. All firefighting equipment will be situated so as to allow for unobstructed access to the equipment and will be conspicuously marked. A temporary or permanent water supply, of sufficient volume, duration, and pressure to operate the required firefighting equipment, will be provided. Combustible waste materials will be controlled in covered roll-off dumpsters. The designated, approved flammable materials storage areas and flammable materials storage containers will be provided with adequate fire prevention systems.

Construction Offsite Fire Suppression Support. The HPP on site fire suppression systems will be supported by Kings County Fire Department (KCFD), Station 7, which will provide assistance as described under the fire protection provisions developed for working safely during construction activities. The nearest fire station is located at 18th Avenue and Indiana (Station No. 7), approximately 7.5 miles northwest of the facility. This location allows for a quick response time. The local fire response units will be provided with information regarding the types and locations of the potential fire hazards at the site. This information will be included in emergency response planning. Routine fire prevention inspections will be conducted by the KCFD.

Construction Emergency Action Plan. An emergency action plan (EAP) will be developed for the construction phase of the HPP. The EAP will designate responsibilities and actions to be taken in the event of an emergency at the site. All employees working at the site will be trained on the contents of the program. The EAP will include:

- Emergency roles and responsibilities
- Emergency notification procedures
- Egress routes and mustering points

Construction Written Safety Programs. Additional written safety programs that will be established for the construction phase include, but are not limited to:

- Hazard communication program
- Confined space program

- Control of hazardous energy program (lockout/tagout)
- Hearing conservation program
- Respiratory protection program
- Blood-borne pathogens control program
- Injury and accident reporting and investigation program
- Ergonomics program
- Emergency response program, including first-aid and medical services
- Smoking policy
- General housekeeping, material handling, and storage procedures
- Vehicle and traffic procedures
- Elevated work procedures
- Heavy equipment procedures
- Hot work procedures
- Crane and hoist procedures
- Compressed gas and air handling procedures
- Subcontractor safety programs
- Equipment inspection programs
- Supervisor safety and health orientations
- Excavation and trenching program
- Hazard identification team and safety marshal program

8.7.3.2 Operation and Maintenance Health and Safety Programs

On completion of the construction phase and implementation of routine operation at the HPP, the construction safety and health program will be transitioned into the existing GWF safety programs that reflect the hazards and controls necessary during routine operation and maintenance. Program outlines for the IIPP, the Fire Protection and Prevention Program, the

EAP, the Hazardous Materials Management Program, and the PPE Program that will be implemented are provided below.

Injury and Illness Prevention Program. The primary mitigation measures for worker hazards during normal plant operation and maintenance are contained in the IIPP, as required by 8 CCR Section 3203. GWF has an existing IIPP that will be modified as appropriate to incorporate the HPP. The IIPP designates a safety representative, who is responsible for implementing the IIPP. The written IIPP also describes safety training for new employees and procedures for tracking safety training. Job safety analyses will identify the safety hazards related to each work task and establish procedures for avoiding, correcting, reporting, and notifying employees of these hazards.

The existing IIPP contains the following information and procedures:

- The person(s) with authority and responsibility for implementing the IIPP
- A system for ensuring that employees comply with safe and healthy work practices
- A system for facilitating employer-employee communications regarding safety
- Procedures for identifying and evaluating workplace hazards, including inspections to identify hazards and unsafe conditions
- Methods for correcting unhealthy or unsafe conditions in a timely manner when danger is imminent
- An employee training program that includes:
  - introducing the program
  - training of new, transferred, or promoted employees
  - training on new processes and equipment
  - training for supervisors
  - training for contractors
- Methods for documenting inspections and training and for maintaining appropriate records

Fire Protection and Prevention Program. Fire protection at the HPP site will include measures to safeguard human life, prevent personnel injury, preserve property, and minimize downtime due to fire or explosion. The program will principally involve physical arrangements, such as sprinkler systems, water supplies, and fire extinguishers. Fire protection measures will include measures to prevent the inception of fires. Points of special concern for this program are adequate exits, fire-safe construction, reduction of ignition sources, and control of fuel sources.

The KCFD provides countywide fire protection services, including fire inspection, limited emergency medical and first aid, suppression and protection, arson inspection, and weed abatement. The department headquarters are located in Hanford, and 11 KCFD fire stations operate countywide (Kings County, 2001). Stations No. 7 (approximately 7.5 miles from the site) and No. 10 (approximately 9 miles from the site) are the closest to the project site and will be the "first response" stations to the project site. Each station can reach the site in eight to nine minutes. Each of the two stations is staffed with one firefighter and 15 volunteers. Station No. 10 has a 2,500-gallon engine, and Station No. 7 is equipped with a 1,000-gallon engine. Station No. 5 will provide backup to Stations No. 10 and No. 7. The KCFD has a mutual-aid agreement with Naval Air Station Lemoore, which could respond to an emergency at the project site in three to four minutes (Virden, 2001).

The HPP site will become the fire protection responsibility of the KCFD, Station No. 7. As such, fire suppression systems will be subject to review and approval by the KCFD, which will have final approval responsibility. The fire suppression systems will be designed by a California Registered Fire Protection Engineer, and fire protection equipment will be installed and maintained in accordance with applicable NFPA standards and recommendations (NFPA, 2000).

The KCFD, Station No. 7, will perform the final inspection of the HPP site when construction is complete. In addition, the KCFD will conduct periodic fire and life safety inspections thereafter, including reviewing and approving programs for regular equipment inspections and servicing and for the training of employees in fire protection procedures. In addition, the project's insurance carrier will provide annual inspections by a fire protection

specialist. Servicing of the fixed carbon dioxide (CO_2) and portable fire extinguishers will be conducted by a licensed contractor.

The overall Fire Protection and Prevention Program for the facility will be designed and implemented to protect both personnel and property. GWF has an existing Fire Protection and Prevention Program that will be modified for the site-specific criteria of HPP. The existing program specifically addresses:

- Names and/or job titles responsible for maintaining equipment and controlling the accumulation of flammable or combustible materials
- Procedures in the event of fire
- Fire alarm and protection equipment
- System and equipment maintenance
- Monthly inspections
- Annual inspections
- Firefighting demonstrations and training
- Good housekeeping practices

Fire Suppression. The following fire suppression systems are proposed for the HPP:

- **CO_2 Fire Protection System.** This system will protect the gas turbine, generator, and accessory equipment compartments from fire. The system will have fire detection sensors in all compartments. The actuating of one sensor will provide a high-temperature alarm on the combustion turbine control panel. The actuating of a second sensor will trip the combustion turbine, turn off ventilation, close ventilation openings, and automatically release the CO_2 fire extinguishing media. The CO_2 fire extinguishing media will be discharged at a design concentration adequate to extinguish the fire.
- **Smoke Detectors and Fire Extinguishers.** These devices will be provided at all locations having potential fire hazards due to the presence of combustible liquids, solids, or other highly flammable materials, and where major property damage could result. Extinguishers will be located at Uniform Fire Code–approved intervals throughout the facility as directed by the local fire inspector and selected for the appropriate class of service.

- **Fire Hydrants/Hose Stations/Building Sprinklers/Deluge System.** These systems will provide fire protection for the exterior plant area, the generator transformers, auxiliary transformers, the administration building, and maintenance building. The main fire pump will be electrically driven and will deliver water to the hydrants, hose stations, and building sprinklers through an underground piping system from the raw water tank. The main fire pump will be powered from the 480-volt plant distribution bus and will be backed up by an emergency diesel generator. An electrically driven jockey pump will operate automatically to maintain water pressure in the fire system piping.

Water will be used as the primary extinguishing agent. Chemical and gas extinguishing agents (permanently installed or in portable extinguishers) will be provided in special hazard areas where water will be ineffective or harmful to the equipment being protected.

Emergency Action and Evacuation Plan. In addition to the incorporation of various safety and environmental features and design measures to minimize emergencies and their effects on public and worker safety, the HPP will have a site-specific Emergency Action and Evacuation Plan. A sample Emergency Action and Evacuation Plan outline is provided in Table 8.7-4. The HPP plan will be modified, as necessary, to incorporate new emergency issues. The Emergency Action and Evacuation Plan addresses potential emergencies, including fires or explosions, hazardous materials releases, medical emergencies, natural disasters, bomb threats, and workplace violence. The plan describes notification and evacuation procedures, points of contact, responsibilities, and other actions to be taken in the event of an emergency. The plan also includes evacuation and assembly area maps. The Emergency Action and Evacuation Plan will be used in conjunction with the IIPP.

Hazardous Materials Management Program. As described in Section 8.12 (Hazardous Materials Handling), several chemicals will be stored and used during both the construction and operation of the HPP. The storage and handling of chemicals will follow applicable LORS to minimize risk to workers. Chemicals will be identified and stored in appropriate chemical storage facilities. Bulk chemicals will be stored in aboveground storage tanks; other chemicals will be stored in their delivery containers. Chemical storage and chemical feed areas will be surrounded by temporary or permanent containment or curbing to contain leaks and spills. The containment areas will be sized to hold an appropriate volume (considering

the potential for the local hazard contingencies) as designated by a California-registered professional engineer.

Safety showers and eyewash stations will be provided in or adjacent to chemical storage and use areas in accordance with 8 CCR requirements. Standard PPE for use during materials handling activities will be provided in a readily available location for use during minor chemical spill containment and cleanup activities by plant personnel. Adequate supplies of absorbent material will also be available on site for minor spill cleanup. A hazardous material emergency response team that has been trained to handle accidental releases of the chemicals used and stored at the plant will be available through contract. Emergency contact numbers will be available to summon assistance from these contractors and to notify local agencies. These procedures will be detailed in the EAP.

Personal Protective Equipment Program. The existing PPE Program addresses the following topics:

- Hazard analysis and prescription of PPE
- Personal protective devices
- Head protection
- Eye and face protection
- Body protection
- Hand protection
- Foot protection
- Sanitation
- Safety belts and life lines
- Protection for electric shock
- Respiratory protective equipment

Written Safety Programs. Written safety programs are in place at the existing GWF operating plants and will be modified as needed to address the overall operation and

maintenance health and safety plan for the HPP. These programs include, but are not limited to, the following:

- Hazard Communication Program
- Respiratory Protection Program
- Hearing Conservation Program
- Hazardous Energy Control Program
- Confined Space Entry Program
- Safe Work Practices Program
- Ergonomics Program
- General Facility Safety Procedures:
  - Compressed Gas Safety Procedures
  - Heavy Equipment Safety Procedures
  - Hand Tools and Equipment Guarding Procedures
  - Hoist and Rigging Safety Procedures
  - Slips, Trips, and Falls Prevention Procedures
  - Hot Work Safety Procedures
- Fall Protection Program
- Contractor Safety Program
- Risk Management Plan

8.7.4 Safety Training Programs

GWF maintains an existing training program to ensure that workers possess the necessary information to recognize and protect themselves from hazards. The program provides comprehensive training for construction personnel and operation/maintenance personnel. The program will be modified as needed to incorporate the HPP.

8.7.4.1 Construction Safety Training Program

Workers participating in the construction phase of the HPP will be required to participate in applicable training programs designed to protect them and others from injuries while working at the site. All construction personnel will be required to attend a basic site safety orientation training course. Additional training will be required based on each individual's specific job responsibilities. All training courses will be documented and attendance records will be maintained at the local job site trailer. Table 8.7-5 provides an overview of the training programs that will be available to construction personnel.

8.7.4.2 Operation and Maintenance Safety Training Program

GWF's Hanford Cogeneration plant personnel will operate and maintain the HPP. Existing operations and maintenance employees participate in training that includes instructions regarding their responsibility for the safe conduct of their work. The program will be modified as needed to incorporate the HPP. These instructions are given at the time the employee is first hired and as an ongoing training program of hazard recognition and avoidance. Employees are instructed in the safety regulations pertinent to their employment tasks. Safe working conditions, work practices, and PPE requirements are communicated in the following manner:

- A new, promoted, or transferred employee receives safety training orientation.
- Safety meetings are held with employees.
- "Toolbox/tailgate" safety meetings are conducted periodically for each crew. General safety topics and specific hazards that may be encountered are discussed. Comments and suggestions from all employees are encouraged.
- A monthly staff safety meeting is held for supervisors.
- Hazard communication training, including California Proposition 65 warnings and discharge prohibitions, is conducted as necessary when new hazardous materials are introduced to the workplace.
- Material safety data sheets are available as required for all appropriate chemicals.
- A bulletin board with required postings and other information is maintained at the plant site.

- Warning signs (e.g., hazardous waste storage area or confined space area) are posted in hazardous areas; these signs comply with applicable regulations (i.e., signs will be bilingual, have the specified font size, etc.).

The safety orientation program provided to new employees is described below:

- The safe work rules for the HPP are explained to each employee.
- A written description of the applicable safe work practices is given to each employee.
- The Hazard Communication Program and requirements for personal protection for the types of hazards that may be encountered at the HPP site are explained and documented.
- Unusual hazards that are found at the work site are explained in detail to each employee, including any specific requirements for personal protection.
- Safety requirements for a new employee's specific job assignment are explained by the foreman upon initial assignment and upon any reassignment.

An element of the Operation and Maintenance Safety Training Program is contractor safety while on site. Contractors are provided with a list of potential safety hazards for their assigned activity by a foreman. The list includes safety rules, chemical exposure hazards, physical hazards, and PPE. In addition, contractors are invited to attend tailgate safety meetings.

Table 8.7-6 provides an overview of the existing training programs that are available to operation and maintenance personnel.

8.7.5 Proposed Conditions of Certification

Proposed conditions of certification are included in Appendix K. With incorporation of the proposed conditions, the HPP will comply with all applicable LORS and will not result in significant impacts to worker health and safety.

8.7.6 Permits Required and Permit Schedule

Table 8.7-7 provides a list of applicable permits related to the protection of worker health and safety for the HPP. For each permit, the list shows the activities covered and the application requirements to obtain the permit. All permits noted in Table 8.7-7 may be

obtained from the Cal-OSHA district office, which for workplaces in Kings County is located in Fresno, California.

Permits listed in Table 8.7-7 are supplied on an as-needed basis by any Cal-OSHA district or field office. Activities that require at least 24 hours' prior notification to Cal-OSHA before they may be initiated are also listed in Table 8.7-7. No specific permitting schedule is provided, as the permits and notifications may be required at variable times during the construction of the HPP or during operation.

8.7.7 Agency Contacts

Agency contacts regarding worker health and safety at the HPP are as follows:

Agency	Contact/Title	Telephone
Kings County Fire Station No. 7 Lemoore, CA	Greg Diaso – A shift Captain Don Wilson – B shift	(559) 924-2626
Cal-OSHA (District Office) Fresno, CA	Larry Baca Area Manager	(559) 445-5302

8.7.8 References

California Code of Regulations (CCR). Title 8. General Industry Safety Orders, (Chapter 4, Subchapter 7) and Construction Safety Orders (Chapter 4, Subchapter 4).

Code of Federal Regulations (CFR). Title 29, Part 26, Health and Safety for Construction, and Title 29, Part 1910, Occupation Safety and Health Standards.

Kings County, 2001. KCFD website: http://www.countyofkings.com/fire/index.htm.

National Fire Protection Association (NFPA), 2000. A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. Quincy, Massachusetts. On-line version available at www.nfpa.org/codes/index.html.

Virden, Mike, 2001. Telephone communication between Mike Virden, Fire Marshall, KCFD, and Katie McKinstry, URS Corporation. June 18, 2001.

TABLES

Table 8.7-1
Worker Health and Safety
Laws, Ordinances, Regulations, and Standards

Administering Authority	Applicable LORS	Requirement/Compliance	AFC Conformance Section
California Occupational Safety and Health Act of 1973 (Cal-OSHA)	Title 8, CCR	The act establishes the Cal-OSHA and establishes minimum safety and health standards for work operations that occur in the state.	8.7.3, 8.7.4
	8 CCR, Section 339	Requires listing of hazardous chemicals relating to the Hazardous Substance Information and Training Act.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 450 et seq. – 560 et seq.	Establishes safety orders for pressurized vessels, including air tanks, anhydrous ammonia, and general safe work practices.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 750 et seq.	Establishes safety orders for work with high pressure steam.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Construction Safety Orders (Sections 1500 et seq. – 1938 et seq.)	Establishes safety orders for construction work.	8.7.3.1, 8.7.4
	8 CCR, Sections 1508 et seq. – 1527 et seq.	Requirements for IIPP, PPE, and general site safety.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 1528 et seq. – 1537 et seq.	Requirements for controlling exposures to hazardous air contaminants.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 1539 et seq. – 1547 et seq.)	Requirements for excavations and trenching.	8.7.3.1, 8.7.4
	8 CCR, Sections 1590 et seq. – 1596 et seq.	Requirements for earth moving and haulage.	8.7.3.1, 8.7.4
	8 CCR, Sections 1597 et seq. – 1599 et seq.	Requirements for vehicles, traffic control, flaggers, barricades, and warning signs.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 1604 et seq. – 1605 et seq.	Requirements for construction hoists.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 1620 et seq. – 1635 et seq.	Requirements for railings, ramps, stairs, access and egress, openings in floors, roofs and walls, and temporary floors.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 1635 et seq. – 1667 et seq.	Requirements for scaffolding.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 1669 et seq. – 1678 et seq.	Requirements for safety belts, nets, and ladders.	8.7.3.1, 8.7.3.2, 8.7.4

Table 8.7-1 (continued)
Worker Health and Safety
Laws, Ordinances, Regulations, and Standards

Administering Authority	Applicable LORS	Requirement/Compliance	AFC Conformance Section
Cal-OSHA (continued)	8 CCR, Sections 1680 et seq. – 1708 et seq.	Requirements for saws, power-actuated tools, miscellaneous tools and equipment.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 1709 et seq. – 1722 et seq.	Requirements for steel reinforcing, concrete pouring, and structural steel erection operations.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 1760 et seq.	Electrical requirements for construction work.	8.7.3.1, 8.7.4
	8 CCR, Sections 1920 et seq. – 1938 et seq.	Requirements for construction-related fire protection and prevention.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Electrical Safety Orders (Sections 2299 et seq. – 2974 et seq.)	Establishes safety orders for installation of low- and high-voltage electrical systems.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, General Industry Safety Orders (Sections 3200 et seq. – 6184 et seq.)	Establishes safety orders for general industry work, including operations and maintenance.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 3200 et seq. – 3583 et seq.	Requirements for IIPP, PPE, and general site safety.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 3620 et seq. – 3920 et seq.	Requirements for mobile equipment operation.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 3940 et seq. – 4647 et seq.	Requirements for power transmission equipment, rotating equipment, moving parts, points of operation, etc.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 4794 et seq. – 4884 et seq.	Requirements for compressed gases and gas systems for cutting and welding.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 4850 et seq. – 4853 et seq.	Requirements for electric welding.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 4884 et seq. – 5049 et seq.	Requirements for cranes and other hoisting equipment.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 5094 et seq. – 5100 et seq.	Requirements for control of excessive noise exposure and ergonomic hazards.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 5139 et seq. – 5223 et seq.	Requirements for the control of hazardous substances, including Hazard Communication Program requirements.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Sections 5615 et seq. – 5629 et seq.	Requirements for the control of hazards from flammable liquids, gases, and vapors.	8.7.3.1, 8.7.3.2, 8.7.4

Table 8.7-1 (continued)
Worker Health and Safety
Laws, Ordinances, Regulations, and Standards

Administering Authority	Applicable LORS	Requirement/Compliance	AFC Conformance Section
Cal-OSHA (continued)	8 CCR, Sections 6150 et seq. – 6184 et seq.	Requirements for fire protection and prevention.	8.7.3.1, 8.7.3.2, 8.7.4
	8 CCR, Part 6	Health and safety requirements for working with tanks and boilers.	8.7.3.1, 8.7.3.2, 8.7.4
Federal Occupational Safety and Health Administration[1]	29 CFR 1926	Federal health and safety regulations pertaining to construction activities.	8.7.3.1, 8.7.3.2, 8.7.4
	29 CFR 1910	Federal health and safety regulations pertaining to general industry.	8.7.3.1, 8.7.3.2, 8.7.4
California Health and Safety Code	Sections 25500 et seq. (LaFollette Bill)	Requires that every new or modified facility that handles, treats, stores, or disposes of more than the threshold quantity of any of the listed acutely hazardous materials prepare and maintain a Risk Management Plan.	8.7.3.2, 8.7.4
	Sections 25500 et seq. – 25541 et seq.	Requires the preparation of a Hazardous Materials Business Plan that details emergency response plans for a hazardous materials emergency at the facility.	8.7.3.2, 8.7.4
City of Lemoore Fire Department	UFC, Article 80	Requires the prevention, control, and mitigation of dangerous conditions related to storage, dispensing, use, and handling of hazardous materials and information needed by emergency response personnel.	8.7.3.1, 8.7.3.2, 8.7.4
	NFPA 10: Portable Fire Extinguishers	Requirements for portable fire extinguishers pertaining to selection, placement, inspection, maintenance, and employee training.	8.7.3.1, 8.7.3.2, 8.7.4
	NFPA 12: Carbon Dioxide Fire Extinguishing Systems	Requirements for the installation and use of carbon dioxide extinguishing systems.	8.7.4, 8.7.3.2
	NFPA 13 & 13A: Sprinkler Systems	Guidelines for selection, installation, maintenance, and testing of fire sprinkler systems.	8.7.3.2, 8.7.4
	NFPA 14: Standpipe and Hose Systems	Guidelines for the selection and installation of standpipe and hose fire protection systems.	8.7.3.2, 8.7.4
	NFPA 15: Water Spray Fixed Systems	Guidelines for the selection and installation of fixed water spray systems.	8.7.3.2, 8.7.4
	NFPA 22: Water Tanks and Private Fire Protection	Requirements for water tanks that are used for private fire protection.	8.7.3.2, 8.7.4

Table 8.7-1 (continued)
Worker Health and Safety
Laws, Ordinances, Regulations, and Standards

Administering Authority	Applicable LORS	Requirement/Compliance	AFC Conformance Section
City of Lemoore Fire Department (continued)	NFPA 24: Installation of Private Fire Service Mains and their Appurtenances	Requirements for the installation of private fire service mains and appurtenances.	8.7.3.2, 8.7.4
	NFPA 26: Supervision of Valves Controlling Water Supplies	Guidance for the installation and supervision of valves used to control water supplies.	8.7.3.1, 8.7.3.2, 8.7.4
	NFPA 30: Flammable and Combustible Liquids	Requirements for storage, transfer, and use of flammable and combustible liquids.	8.7.3.2, 8.7.4
	NFPA 37: Stationary Combustion Engines and Gas Turbines	Fire protection requirements for the installation and use of combustion engines and gas turbines.	8.7.3.2, 8.7.4
	NFPA 50A: Gaseous Hydrogen Systems	Fire protection requirements for hydrogen systems.	8.7.3.2, 8.7.4
	NFPA 54: National Fuel Gas Code	Fire protection requirements for the use of fuel gas.	8.7.3.2, 8.7.4
	NFPA 70, 70B & 70E: National Electric Code	Guidance on the safe selection and work practices associated with the design, installation, construction, and maintenance of electrical systems.	8.7.3.1, 8.7.3.2, 8.7.4
	NFPA 71: Installation, Maintenance, and Use of Central Station Signaling Systems	Requirements for the installation, maintenance, and use of central station signaling systems.	8.7.3.2, 8.7.4
	NFPA 72A, 72E & 72F: Local Protective Signaling System, Automatic Fire Detection System, Emergency Voice/Alarm Communication System	Requirements for the design, installation, use, and maintenance of local protective signaling systems, automatic fire detection systems, and emergency communication systems.	8.7.3.2, 8.7.4
	NFPA 78: Lightning Protection Code	Requirements for lightning protection.	8.7.3.2, 8.7.4
	NFPA 80: Fire Doors and Windows	Requirements for fire doors and windows.	8.7.3.2, 8.7.4
	NFPA 90A: Installation of Air Conditioning and Ventilation Systems	Guidance for the installation of air conditioning and ventilation systems.	8.7.3.2, 8.7.4

Table 8.7-1 (continued)
Worker Health and Safety
Laws, Ordinances, Regulations, and Standards

Administering Authority	Applicable LORS	Requirement/Compliance	AFC Conformance Section
City of Lemoore Fire Department (continued)	NFPA 101: Life Safety, Fire in Buildings and Structures	Requirements for the design and construction of means of egress from structures.	8.7.3.2, 8.7.4
	NFPA 291: Fire Flow Testing and Marking of Hydrants	Requirements for flow testing and marking of fire hydrants.	8.7.3.2, 8.7.4
	NFPA 1962: Care, Maintenance and Use of Fire Hoses	Requirements for the care, use, and maintenance of fire hoses, connections, and nozzles.	8.7.3.2, 8.7.4
City of Lemoore Building Inspector	ANSI/ASME Boiler and Pressure Vessel Code	Specifications and requirements for boilers and pressure vessels.	8.7.3.2, 8.7.4
	ANSI, B31.2, Fuel Gas Piping	Specifications and requirements for fuel gas piping.	8.7.3.2, 8.7.4

[1] Cal-OSHA has primary jurisdiction for worker health and safety in California. These regulations are provided for reference purposes and apply as referenced in Cal-OSHA regulations.

ANSI/ASME= American National Standards Institute/American Society for Mechanical Engineers
Cal-OSHA = California Occupational Safety and Health Administration
CCR = California Code of Regulations
CFR = Code of Federal Regulations
IIPP = Injury and Illness Prevention Program
LORS = Laws, ordinances, regulations, and standards
NFPA = National Fire Protection Association
PPE = Personal protective equipment
UFC = Uniform Fire Code

Table 8.7-2
HPP Hazard Analysis

Activity	Exposure Potential	Potential Hazard	Control Strategies
Heavy Equipment Operation	C, O, M	Employee injury and property damage from collisions with workers and/or facility equipment.	Implement heavy equipment safety program and ensure that operators are properly trained.
Trenching and Excavation	C, O, M	Employee injury and property damage from collapse of trenches and excavations or contact with underground utilities.	Implement an excavation and trenching safety program and ensure that operators are properly trained. Require digging permits prior to initiating excavation or trenching.
Work at Elevation	C, O, M	Employee injury due to falls from the same level and elevated areas.	Implement a fall protection program that requires fall protection systems whenever unprotected work is performed at greater than 6 feet.
General Project Work	C, O, M	Employee injury resulting from a slip, trip, or fall.	Maintain good housekeeping, adequate lighting, and compliant stairways and railings.
Crane and Derrick Operation	C, O, M	Employee injuries and property damage due to falling loads.	Implement hoisting and rigging safety program and ensure that operators are properly trained.
Hot Work	C, O, M	Employee injuries and property damage due to fire or explosion.	Implement fire protection and prevention program, require hot work permits, and ensure that welders, pipe fitters, etc., are properly trained.
Working with Combustible Liquids	C, O, M	Employee injuries and property damage due to fire or explosion.	Implement fire protection and prevention program that includes proper procedures for the proper storage and use of flammable or combustible liquids.
Concrete/Forms Work	C	Employee injuries due to work at height, slips, trips, and falls.	Wear fall protection when working at height, protect exposed rebar, and maintain good housekeeping.
Electrical Work	C, O, M	Employee injuries due to contact with energized parts.	Implement energy control program, including LO/TO of energized sources.
Materials Handling	C, O, M	Employee injuries due to improper lifting.	Implement an ergonomics program and train employees in proper lifting techniques.

Table 8.7-2 (continued)
HPP Hazard Analysis

Activity	Exposure Potential	Potential Hazard	Control Strategies
Confined Space Entries	C, O, M	Employee injuries due to suffocation, exposure to toxic materials, engulfment, etc.	Implement a confined space program, including permit procedures and air monitoring requirements.
Compressed Gas Storage	C, O, M	Employee injuries and equipment damage due to explosive release of pressure.	Implement a compressed gas safety program, including procedures for proper use and storage.
Power Tool Use	C, O, M	Employee injuries due to improper use, or use of damaged power tools.	Implement procedures for inspecting power tools before operation and train employees on the proper use and care of power tools.
Working with or near hazardous or toxic materials	C, O, M	Employee injuries due to exposure to hazardous and/or toxic materials.	Implement hazard communication program and exposure control procedures, including engineering controls, administrative controls, and PPE for activities that may expose employees to hazardous/toxic materials.
Working with or near noisy equipment	C, O, M	Employee overexposure to noise.	Implement a hearing conservation program to include: identifying high noise activities and sources, Sound-level monitoring, and PPE.
Working with or near exposed machinery	C, O, M	Employee injuries from entanglement in rotating or moving equipment.	Develop and implement machine-guarding equipment LO/TO procedures.

C = Construction Phase
O = Facility Operation
M = Facilities Maintenance
LO/TO = lockout/tagout
PPE = personal protective equipment

Table 8.7-3
Protective Equipment Guide

Body Area	Hazards	Recommended Protection
Eyes/Face	Low-velocity flying particles	Safety glasses with side shields
	High-velocity chips and sparks	Impact goggles or safety glasses with full face shield
	Corrosive liquid splash during transfer	Splash proof goggles and face shield
	Welding – injurious light rays	Welding hood with appropriate eye filter lenses and welding screens
Head/Ears	General overhead hazards, overhead rigging, material handling, maintenance, and general construction operations	Nonconductive hard hat
	Noise exposure	Earplugs or muff
Respiratory System	Low-hazard inert dust	Nuisance dust mask
	Welding fumes	Dust, fume, mist respirator
	Low-concentration solvent vapors	Cartridge-type air purifying respirator with organic vapor cartridges
	Acid or base mists	Cartridge-type air purifying respirator with appropriate acid/base cartridges
	High-concentration dusts or toxic vapors, gases	Air line respirator
	Oxygen-deficient atmospheres, IDLH concentrations of vapors, gases	Self-contained breathing apparatus
Hands and Arms	Handling of rough or sharp objects	Leather gloves
	Handling of hot objects	Insulated gloves
	Using solvents	Chemical-resistant synthetic gloves
Feet and Legs	Handling light objects	Safety shoes
	Handling heavy objects	Steel-toed safety boots
	Using brush hooks or scythes	Shin guards
	Working with corrosive liquids	Chemical-resistant safety boots
	Underground work	Steel-toed safety boots

Table 8.7-3 (continued)
Protective Equipment Guide

Body Area	Hazards	Recommended Protection
Trunk and Full Body	Normal work activities	Cotton pants and shirt
	Hot or corrosive liquids	Chemical resistant apron or full body suit
	Punctures, impact, or cuts	Canvas or leather kickback apron or metal mesh apron
	Heat stress	Covered break area and remind workers to drink plenty of fluids.
Fall Protection/Rescue	Working from elevated structure of platform without standard railings	Full body safety harness and lanyard
	Vessel (confined space) entry	Full body safety harness and lifeline or wristlets and lifeline
	Suspended scaffolds	Full body safety harness/lanyard

IDLH = Immediately dangerous to life and health

Table 8.7-4
Sample Operations Emergency Action and Evacuation Plan Outline

1.0 Introduction
2.0 Emergency Organizational Structure
- 2.1 Purpose
- 2.2 Scope

3.0 Training
4.0 Notification of Emergencies
- 4.1 Notifications
- 4.2 Internal Notification
- 4.3 External Communication
- 4.4 Community Alert Network
- 4.5 General Emergency Response

5.0 Evacuation Procedures
- 5.1 Evacuation Procedures
- 5.2 Assembly Areas
- 5.3 Re-Entry
- 5.4 Key Points for All Site Personnel to Follow During Evacuation
- 5.5 Area Relocation
- 5.6 Long-Term Evacuation

6.0 Fires or Explosions
7.0 Hazardous Materials Releases
- 7.1 Purpose
- 7.2 Release Potential
- 7.3 Small Spill Release Procedures
- 7.4 Large Release Procedures
- 7.5 Disposal of Cleanup Wastes
- 7.6 Water Pollution Control

8.0 Medical Emergencies
9.0 Natural Disasters
- 9.1 Major Earthquakes
- 9.2 Floods

10.0 Sabotage and Bomb Threats
- 10.1 Sabotage
- 10.2 Bomb Threats

11.0 Train Derailment
12.0 Workplace Violence
13.0 Emergency Public Information
14.0 Coordination with Outside Agencies

Table 8.7-5
Construction Training Program

Training Course	Target Employees
Site Safety Orientation	All
Injury and Illness Prevention Program	All
Emergency Action Plan	All
PPE Program	All
Heavy Equipment Safety Program Forklift Operator Training	Employees working on, near, or with heavy equipment
Trenching and Excavation Safety Program	Employees working on or near trenches or excavations.
Fall Protection Program	Employees required to work at elevation (> 6 feet).
Scaffolding Safety Program	Employees required to erect or use scaffolding
Hoisting and Rigging Safety Program	Employees responsible for performing and/or supervising hoisting and rigging.
Crane Safety Program	Employees supervising or performing crane operations
Flammable and Combustible Liquid Storage and Handling	Employees responsible for the handling and storage of flammable or combustible liquids or gasses
Hot Work Permits	Employees performing hot work
Hazardous Energy Control (Lockout/Tagout)	Employees performing lockout/tagout
Electrical Safety	Employees required to work on electrical systems and equipment
Permit Required Confined Space Entry	Employees required to supervise or perform confined space entry
Hand and Portable Power Tool Safety	All
Housekeeping Policy and Program	All
Hearing Conservation	All
Safe Lifting Program	All
Safe Driving Program	Employees supervising or driving motor vehicles
Hazard Communication	All
Pressure Safety	Employees supervising or working on pressurized systems or equipment
Line Breaking Safety	Employees performing general maintenance or working on pressurized systems or equipment

Table 8.7-5 (continued)
Construction Training Program

Training Course	Target Employees
Respiratory Protection Program	All employees required to wear respiratory protection
Fire Prevention Program	All
Emergency Action Plan	All
HAZWOPER/First Responder	Employees working around hazardous materials or waste
Recognition of and Treatment for Heat Stress	All
First Aid	All
CPR	All

Table 8.7-6
Operation and Maintenance Training Program

Training Course	Target Employees
Site Safety Orientation	All
Injury and Illness Prevention Program	All
Emergency Action Plan	All
PPE Program	All
Trenching and Excavation Safety Program	Employees performing or supervising trenching or excavation work
100% Fall Protection Program	Employees required to use fall protection
Hoisting and Rigging Safety Program	Employees responsible for the oversight or conduct of hoisting and rigging
Forklift Operator Training	Employees working on, near, or with forklifts
Crane Safety Program	Employees supervising or performing crane operations
Flammable and Combustible Liquid Storage and Handling	Employees responsible for the handling and storage of flammable or combustible liquids or gasses
Hot Work Permits	Employees performing hot work
Hazardous Energy Control (Lockout/Tagout)	Employees performing lockout/tagout
Electrical Safety	Employees required to work on electrical systems and equipment
Permit Required Confined Space Entry	Employees required to supervise or perform confined space entry
Hand and Portable Power Tool Safety	All
Housekeeping Policy and Program	All
Hearing Conservation	All
Safe Lifting Program	All
Safe Driving Program	Employees supervising or driving motor vehicles
Hazard Communication	All
Pressure Safety	Employees supervising or working on pressurized systems or equipment
Line Breaking Safety	Employees performing general maintenance or working on pressurized systems or equipment

Table 8.7-6 (continued)
Operation and Maintenance Training Program

Training Course	Target Employees
Relief Valve Maintenance and Testing	Employees performing maintenance or testing of relief valves
Respiratory Protection Program	All employees required to wear respiratory protection
Fire Prevention Program	All
Fire Protection Program	All
HAZWOPER/First Responder	Employees working with hazardous materials or waste
Recognition of and Treatment for Heat Stress	All
First Aid	All
CPR	All

Table 8.7-7
Health and Safety Permits

Permit	Issuing Agency	Application Requirements	Permit Procurement
Trenching and Excavation Permit	Any Cal-OSHA district or field office	Required for the following: • Trenches and excavations more than five feet into which personnel are required to enter or that are adjacent to structures • Construction of buildings, structures, scaffolding, or falsework more than three stories high • Demolition of any building or structure, or the dismantling of scaffolding or falsework more than three stories high	Submit completed permit application to any Cal-OSHA district or field office prior to commencing construction

Cal-OSHA = California Occupational Safety and Health Administration

FIGURES